REMARKS

Claims 1-7 are presently pending in the application. In view of the arguments for patentability set forth below, Applicants respectfully submit that this application is now in condition for allowance.

Claim Rejections – 35 U.S.C. §103(a)

Claim 1 stands rejected under Section 103(a) as being unpatentable over Thompson et al. U.S. Patent No. 6,282,005 ("Thompson") in view of Ostman et al. U.S. Patent No. 5,786,782 ("Ostman") Applicants respectfully traverse this rejection and submit that the combination of Thompson and Ostman fails to teach or suggest the claimed invention.

As set forth in the prior response, in accordance with an aspect of the present invention, *multiple RF blocks* are frequency-division multiplexed *onto each wavelength band* of a WDM optical system. As described, for example, in the specification:

> Fig. 3a shows a diagram of the system concept. At central office transmitter 305, the output of a broadband ASE source 306, for example, a gain-flattened Erbium-Doped Fiber Amplifier (EDFA) not shown, is sliced into multiple optical bands whose width matches the FSR of the distribution WGR at a Remote Node (RN) 310 (four bands are shown in the exemplary embodiment). Central office transmitter 305 is coupled to the remote node 310 in the exemplary embodiment via feeder fiber 315. Each spectral band is modulated with multiple blocks of RF subcarriers. In the case of the system demonstration for the present invention, four RF blocks were derived from a commercial satellite antenna. Each RF block of 500 MHz contained greater than 80 digital video channels multiplexed into 16 QPSK carriers in the 950-1450 MHz band. After block-conversion into blocks between 50-550, 550-1050, 1050-1550 and 1550-2050 MHz, *these RF bands were combined externally to modulate each of the four optical bands.* Consequently, the re-multiplexed optical signal in the feeder fiber contained the entire service matrix shown in the inset to Fig. 3a: each square box represents a 500 MHz block of the commercial service.

Specification at pp. 6 – 7, ¶28 (emphasis added).

In this regard, independent claim 1 calls for a method for delivering a plurality of video blocks to a user terminal serviced by a remote node comprising the steps of:

> receiving, by a first WDM, a broadband signal from a broadband signal source;
>
> separating, by said first WDM, said broadband signal into a plurality of optical bands;
>
> *modulating each of the plurality of optical bands with a composite signal representing data in a plurality of independent RF blocks to form a plurality of modulated signals*;
>
> forwarding said plurality of modulated signals to a second WDM to form a combined broadcast signal;
>
> transmitting said combined broadcast signal over feeder fiber to a remote node;
>
> further transmitting said combined broadcast signal over distribution fiber to a user's site; and
>
> selecting a RF block for distribution over a distribution fiber to a satellite set-top box at a user's site.

Claim 1 (emphasis added).

The Examiner contends that Thompson discloses "modulating each of the plurality of optical bands with a composite signal representing data by modulators 160, 162, 164 to form a plurality of modulated signals." See Office Action at page 2. The Examiner then acknowledges that Thompson "differs from claim 1 of the present invention in that he does not specifically disclose[s, sic] modulating each of the plurality of optical bands with a composite signal representing data in a plurality of independent RF blocks" and cites Ostman for the teaching of "modulating each of the plurality of optical bands with a composite signal representing data in a plurality of independent RF blocks (col. 1, lines 16-54).

As previously set forth, Thompson explicitly teaches that *a single block* of RF information (e.g., RF INFORMATION 1, RF INFORMATION 2 . . . RF INFORMATION N) is respectively multiplexed onto each of the optical carriers

$\lambda_0, \lambda_1, \ldots \lambda_n$. Thompson states: "[t]he carriers are modulated by information signals 1 – N and transmitted over a single fiber link 146 to an optical receiver group 142." See Col. 11, lines 41 – 44.

At the outset, Applicants respectfully submit that Ostman is non-analogous art as it is: (1) neither in the same field of endeavor; nor (2) reasonably pertinent to the particular problem with which the inventors were concerned. See M.P.E.P. § 2141.01(a) (citing In re Oetiker, 977 F.2d 1443, 1446 (Fed. Cir. 1992)). Ostman is directed to a means of reducing the number of A/D and D/A converters in a baseband signal processing circuit, specifically in the field of mobile telephones. See Col. 1, lines 1 – 14 and Col. 2, lines 18 – 22.

The present invention is directed to *WDM passive optical networks (PONs)* that enable the simultaneous delivery of multiple RF bands. Applicants submit that Ostman has nothing to do with WDM optical networks, and is thus not in the same field of endeavor as the present invention. Neither is Ostman reasonably pertinent to increasing the capacity and flexibility of QPSK systems capable of delivering blocks of programming by frequency-division multiplexing multiple RF blocks onto each wavelength band in a WDM optical system. The cited portions of Ostman (Col. 1, lines 16-54) describe the components of a prior art (to Ostman) transmitter/receiver in a mobile phone. This is discussed in the context of the Ostman invention to reduce the number of A/D and D/A converters in the signal processing circuitry as described above. Accordingly, Applicants submit that Ostman is non-analogous art as it is neither in the same field of endeavor, nor reasonably pertinent to an invention relating to WDM optical networking.

Furthermore, even if, assuming *arguendo*, that Ostman is analogous art, the combination of these references still would not reach the claimed invention as there is nothing in Ostman that would motivate one of ordinary skill in the art to modify the explicit teachings in Thompson that call for *a single block* of RF information that is respectively multiplexed onto each of the optical carriers λ_0, $\lambda_1, \ldots \lambda_n$, as discussed above. Ostman merely teaches that "the resulting intermediate frequency C is directed into RF blocks, in which the signal is used to

modulate a radio-frequency carrier wave (not shown in FIG. 1)." See Col. 1, lines 38 – 40. The instant claims call for "modulating each of the plurality *of optical bands with a composite signal* representing data in a plurality of independent RF blocks to form a plurality of modulated signals." There is nothing in either of the cited references that teaches or suggests modulating optical bands with a composite signal.

In view of the above, Applicants respectfully submit that this rejection is improper and that independent claim 1 is patentable over the combination of Thompson and Ostman.

Claims 2 – 6 stand rejected under Section 103(a) as being unpatentable over the combination of Thompson and Ostman (see above), and further in view of Lam. Applicants hereby reiterate the above argument distinguishing Thompson and Ostman, and respectfully submit that Lam fails to remedy the deficiencies in the disclosures of the prior asserted combination.

As described in the Abstract, Lam discloses:

> A method and system deliver multiple-band broadcast services in a network such as a wavelength division multiplexed passive optical network. In the transmitter and/or receiver of such a system, filters are cascaded to stack data corresponding to different services within different free spectral frequency ranges of an optical transmission signal. Each filter is used to select a portion of a free spectral frequency range to be delivered to a user node. Each transmitter filter confines the output from spontaneous emission sources to a desired spectral region. The cascaded filters can also combine multiple spectra and/or separate combined broadcast spectrum. The method can also be used to partition the output from a broadband spectral source into different portions in the spectral domain.

Lam fails to disclose or suggest anything relating to the claimed step of "modulating each of the plurality of optical bands with a composite signal representing data in a plurality of independent RF blocks to form a plurality of modulated signals." Accordingly, it is respectfully submitted that even if, assuming *arguendo*, these references would be properly combinable, Lam fails to remedy the deficiencies in the disclosures of both Thompson and Ostman, and

that dependent claims 2 – 6 are patentable over the asserted combination for at least the same reasons enumerated above with respect to claim 1.

In view of the foregoing, Applicants respectfully submit that claims 1-7 are patentable over the cited art and allowance of these claims at an early date is solicited.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. 1.16 or 1.17 to AT&T Corp. Account No. 01-2745. The Examiner is invited to contact the undersigned at (908) 707-1573 to discuss any matter concerning this application.

Respectfully submitted,
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By:

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